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SUBJECT: **Evidence Summary Memorandum for GE Former Court Street Plant 5**

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1. Introduction

Revitalizing Auto Communities Environmental Response (RACER) Trust and Knauf Shaw LLP (Knauf Shaw) contacted TIG Environmental¹ to provide consulting services regarding potentially responsible party (PRP) identification and investigation, sampling and data analysis, and expert witness testimony to support RACER Trust and Knauf Shaw during litigation proceedings stemming from a Civil Action No.: 5:18-cv-1267 [DNH/ATB] filed on October 26, 2018 (the Complaint) (RACER 2018).

In the Complaint, RACER Trust, by its attorneys, Knauf Shaw LLP, brings claims for cost recovery and contribution under Sections 107(a) and 113(f) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 U.S.C. 9607(a) and 9613(f), inter alia, against parties (Defendants) operating in or around the Ley Creek Watershed Site (Study Area) in Onondaga County, New York. The Complaint asserts that the Defendants are responsible to contribute to the cost of past and future investigations to address contamination in and around the Study Area.

The Study Area consists of the GM-Inland Fisher Guide Facility (GM-IFG) Sub-Site Operable Unit 1 (OU-1), the expanded OU-2 area (Ley Creek from Townline Road west to Route 11, including creek banks and limited floodplain and hotspot areas), and tributaries upstream of Townline Road bridge. As defined in the Record of Decision (ROD) for OU-2, the identified contaminants of concern (COCs) in the Study Area are polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), chromium, copper, lead, nickel, and zinc. PCBs are the predominant contaminants in Ley Creek sediments (NYSDEC and EPA 2015).

In this evidence summary memorandum (ESM), TIG Environmental reviewed evidence gathered by RACER Trust and Knauf Shaw to evaluate the following for each Defendant's site:

- Documented and suspected PCB usage at the Defendant's site

¹ TIG Environmental is a member of The Intelligence Group, LLC.

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- The existence of PCB-containing electrical equipment or electrical substations (utility- or Defendant-owned) on Defendant's site
- Whether pathways exist between the Defendant's site and the Ley Creek watershed (defined as Ley Creek and its tributaries)

Sections 2 through 4 summarize the available information on Defendant operations related, or potentially related, to PCB usage; detections of contaminants at or related to the Defendant site; permits, waste handling, spills, and/or releases at each Defendant's site; whether pathways from the Site to Ley Creek watershed can be determined; data gaps; and proposed sampling to address identified data gaps. Defendant information, site ownership information, and dates of operation for the Defendant's site are available in Knauf Shaw's site dossier (Knauf Shaw GE Former Court Street Plant 5 Site Dossier 2019).

2. Description of Site Operations Related to PCBs

General Electric (GE)² manufactured radar and sonar equipment, printed circuit boards, and power packs from 1956 until 1991 at the GE Court Street Plant 5 Site (the Site) located at 6417, 6439, and 6545 Deere Road, Syracuse, NY. The Site consisted of building 5 and building 5A, both constructed in 1956. GE began leasing building 5 in 1956 and building 5A in 1958 (FOIL001446 at FOIL001450). To support electronics manufacturing operations, the Site included PCB-containing transformers at four locations (FOIL001446 at FOIL001451).

PCB-containing transformers, manufactured by GE,³ were located on the north side of building 5, the west side of building 5A, inside building 5, and inside the pump house north of building 5 (FOIL001446 at FOIL001451). During at least 1990, transformers on the north side of building 5 contained PCBs up to 500 parts per million (ppm) (FOIL001622 at FOIL001630). The PCB content of transformers located on the west side of building 5A and the indoor transformers was not included in documents reviewed.

Multiple releases of PCBs occurred at the Site. These include releases near outdoor transformers and inside building 5A, as indicated by documented releases and detections of PCBs in site media (FOIL001622 at FOIL001632; FOIL001446 at FOIL001459, 494). In 1995, PCBs (Aroclor 1260)⁴ were detected in a soil sample collected adjacent to the drain outlet for the transformer pad west of building 5A at a concentration of 27.4 ppm (FOIL001622 at FOIL001632). In addition, PCBs were detected in sediments at concentrations

² GE transferred its aerospace business and lease for the GE Court Street Plant 5 Site to Martin Marietta Corporation (MMC) in 1993. In 1996, MMC merged with its parent company, Lockheed Martin Corporation (Lockheed). Lockheed is currently responsible for the remedial activities resulting from GE operations at the GE Court Street Plant 5 Site (FOIL001622 at FOIL001627; FOIL001446 at FOIL001450).

³ It is unclear where these transformers were manufactured.

⁴ Beginning in 1935, Swann Chemical Company, followed by the Monsanto Company, produced commercially available PCB-containing goods in a line of products known as "Aroclors." Each of the 10 common PCB Aroclor mixtures are generally associated with certain signatures of PCB congeners (there are 209 PCB congeners) (Erickson and Kaley 2011, 2–3). The style of reporting analytical data for PCBs varies in reviewed documentation. Results may be reported as individual Aroclors and/or congeners, as a sum of all or some of these analytes, or simply as "PCBs." For purposes of this memorandum, TIG Environmental will state "total PCBs" when the source document has reported analytical results as either "PCBs" or "total PCBs." This is presumed to represent the sum of PCB Aroclors or congeners. TIG Environmental will report Aroclor- or congener-specific data where that information is available.

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of 45.5 ppm at a drainage sump inside building 5A (FOIL001446 at FOIL001458, 492, 494). In 1997, a release of transformer oil was observed north of building 5. As a result, a contractor was hired by the property owner to remove approximately 1,500 gallons of transformer oil, six drums of oil/water mixture, and one drum of oily debris from the transformer containment area (FOIL000300 at FOIL000331). Although the release is described as occurring within a berm area, staining and sheening—potentially from historical releases—is visible outside of containment in photographs of the incident (FOIL000849 at FOIL000849–850). At the time of the 1997 release, oil in the transformers north of building 5 contained up to 45 ppm of Aroclor 1260 and wipe samples from the transformer pad contained up to 16 ppm of Aroclor 1260 (FOIL000300 at FOIL000337, 340).

GE removed transformers located in the pump house, inside building 5, and on the west side of building 5A in 1989 and 1990. At the time of removal, the transformers in the pump house and inside building 5 were replaced with non-PCB transformers. Later, in 1995, soil containing PCBs adjacent to the building 5A transformer pad was removed (FOIL001446 at FOIL001451; FOIL001622 at FOIL001632). The transformers and transformer pad north of building 5 were removed following the release in 1997 (FOIL000300 at FOIL000331). According to reviewed documents, dewatering operations during excavation activities in 1997 discharged to Sanders Creek, a tributary of Ley Creek, via the stormwater outfall (FOIL000300 at FOIL000305). Lockheed reported that up to 370 parts per billion (ppb) of Aroclor 1260 were detected in samples labeled “groundwater” during transformer removal (FOIL000446 at FOIL000499). The primary report and additional information related to analysis of PCBs in groundwater was not identified in documents reviewed.

Reviewed documents did not state that transformers were present inside building 5A. GE used building 5A as a warehouse for raw materials, for equipment testing, and as a repair shop (FOIL001622 at FOIL001630). Although details of the specific operations were not included in documents reviewed, PCBs may have been present in electrical equipment including voltage regulators, switches, electromagnets, and capacitors according to the U.S. Environmental Protection Agency (EPA) (EPA 2019; EPA 1976, 27–28, 43, 54). In addition, wastes generated at the Site included paint (FOIL001446 at FOIL001452). Given the period of operations, oil-based paint used during manufacturing operations at the Site prior to 1979 may have contained PCBs⁵ (EPA 2019; EPA 1976, 43, 54). GE transported waste paint off the Site to the GE Electronics Park facility⁶ until 1984, when GE began storing waste at the Site prior to contractor transport and disposal (FOIL001446 at FOIL001452). Monsanto Chemical Company (Monsanto) (supplier of approximately 99% of PCBs used in the U.S.) records indicate GE purchased approximately 25,190 pounds of Aroclor 1254 and Aroclor 1260 products that were delivered to Dewitt and Syracuse between 1970 and

⁵ On May 31, 1979, the manufacture of PCBs was banned from non-enclosed uses, effective July 2, 1979 (EPA 1979a). Although PCBs were banned for use in 1979, they did not immediately disappear and are still present throughout the environment in trace quantities, as a result of the EPA-authorized five-year phase-out period and the continued use of these banned materials (EPA 1979b).

⁶ The GE Electronics Park facility is located at 497 Electronics Parkway, Syracuse, NY 13221.

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1975; however, the Monsanto sales records do not identify the specific GE site address that received these products⁷ (Monsanto 1972, 194; Monsanto 1982, 38, 176, 191).

In 1998, GE completed the construction of a groundwater collection and treatment system. Groundwater at the Site is contaminated with volatile organic compounds (VOCs) as a result of GE's underground storage and use of chlorinated solvents. The purpose of the groundwater treatment system is to prevent the migration of VOCs in groundwater to Sanders Creek and South Branch Ley Creek. The collection sump and treatment building are located on the northern portion of the Site near the north side of Building 5 (FOIL004801 at FOIL004806, 821; FOIL005544 at FOIL005549).

2.1 Discharge Permits, Waste Handling, and/or Spills at the Site

2.1.1 Discharge Permits

The EDR report for the Site included a National Pollutant Discharge Elimination System (NPDES) permit formerly associated with industrial stormwater discharges (Knauf Shaw GE Court Street Plant 5 Exhibit A, 73). In addition, discharges from the groundwater treatment system may be monitored and discharged to Sanders and Ley Creeks pursuant to a State Pollutant Discharge Elimination System (SPDES) permit, based on an effluent limitations form provided by New York State Department of Environmental Conservation (NYSDEC) (FOIL001445 at FOIL001445). However, copies of the permits were not identified in documents reviewed.

2.1.2 Waste Handling Related to PCBs

Hazardous waste generated at the Site included paint, solvents, and lab packs. Prior to 1984, GE transported hazardous waste off-site to the GE Electronics Park facility. After 1984 GE stored hazardous waste at the Site for contractor transport and disposal (FOIL001446 at FOIL001452). Given that the period of operations includes years prior to the 1979 ban on PCBs from non-enclosed uses, paint used for manufacturing operations at the Site may have contained PCBs.

2.1.3 Spills Related to PCBs

The following is a list of spills documented by NYSDEC. Unless noted, the PCB content of oils and unidentified materials at the Site was not included in documents reviewed. It is possible that waste oil, unknown petroleum products, and hydraulic oils contained PCBs.

1987: Two underground storage tanks (USTs) containing fuel oil were observed to be leaking at rates of 0.28 gallons per hour (gal/hr) and 4.89 gal/hr (Knauf Shaw GE Court Street Plant 5 Exhibit A, 33).

1991: A sheen was observed in groundwater during the removal of USTs containing fuel oil and an unknown petroleum product (Knauf Shaw GE Court Street Plant 5 Exhibit A, 31–32).

1992: Compressor blowdown was discharging hydraulic oil and water (Knauf Shaw GE Court Street Plant 5 Exhibit A, 54).

⁷ Reviewed documents do not indicate whether some of the material purchased from Monsanto may have been transported to the GE Electronics Park facility.

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1997: Multiple spills occurred on the Site in 1997:

- A leaking truck released hydraulic cylinder fluid into the storm drain (FOIL000001 at FOIL000001).
- Leaking transformers were observed north of building 5. A contractor for the property owner removed approximately 1,500 gallons of transformer oil, six drums of oil/water mixture, and one drum of oily debris from the transformer containment area (FOIL000300 at FOIL000331; FOIL005068 at FOIL005068). Although the release is described as occurring within a berm area, staining and sheening—potentially from historical releases—is visible outside of containment in photographs of the incident (FOIL000849 at FOIL000849–850; FOIL005068 at FOIL005068).
- A bright green unidentified substance was observed in Sanders Creek, a tributary of Ley Creek. The source was not identified (FOIL005069 at FOIL005069).

2006: A utility pole was knocked down by a vehicle causing a release of transformer oil to an unspecified storm drain. It is unclear whether this event occurred at or adjacent to the Site (Knauf Shaw GE Court Street Plant 5 Exhibit A, 3). The PCB content in this transformer was not provided in the documents reviewed.

The first available information regarding spills is the abovementioned report from 1987. Given the nature of the documented releases (leaks), it is likely that releases were not isolated incidents limited to just those indicated by available spill reports.

2.2 PCB Discharges to Ley Creek or Tributaries

This section discusses the documented or potential discharge pathways of PCBs from the Site, with emphasis on discharges to Ley Creek or its tributaries.

2.2.1 Direct Discharge

This section discusses the documented or potential PCB-containing direct discharges from the Site to Ley Creek or its tributaries.

- According to reviewed documents, dewatering operations during transformer pad excavation activities in 1997 discharged to Sanders Creek, a tributary of Ley Creek, via the stormwater outfall OF-1A (FOIL000300 at FOIL000305). There is no record of PCB sampling in discharges to this outfall.

2.2.2 Sanitary Sewer

This section discusses the documented or potential PCB-containing discharges from the Site via sanitary sewers.

- Building 5A contained approximately 14 floor drains. According to correspondence between Lockheed and NYSDEC, the floor drains discharged to the sanitary sewer; however, the figures provided do not depict the location of the floor drains and appear to show building connections to both sanitary and storm sewers. A sediment sample collected from the floor drain sump contained 45.5 ppm PCBs (FOIL001446 at FOIL001458, 492, 494, 502–503).

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2.2.3 Storm Sewer

This section discusses the documented or potential PCB-containing discharges from the Site via storm sewers.

- Stormwater at the Site discharges through two outfalls. Outfall OF-01 historically discharged to Sanders Creek and outfall OF-02 currently discharges to South Branch Ley Creek. To prevent infiltration of VOC-contaminated groundwater, sections of the storm sewer were replaced in 1992 and 1993 (FOIL001522 at FOIL001526–527). A new outfall (OF-1A) was constructed to replace outfall OF-01 in approximately the same location. Sampling related to the storm sewer replacement project did not include PCB analysis (FOIL001522 at FOIL001532, 538).
- In addition to outfalls for catch basins located on the Site, a historical site plan appears to show a storm sewer adjacent to the east side of the Site, discharging to Sanders Creek upstream of outfall OF-01/1A. This storm sewer is connected to building 5A (FOIL001446 at FOIL001503).
- Building 5A contained approximately 14 floor drains. According to correspondence between Lockheed and NYSDEC, the floor drains discharged to the sanitary sewer. However, provided figures do not depict the location of the floor drains and appear to show building connections to both sanitary and storm sewers. A sediment sample collected from the floor drain sump contained 45.5 ppm PCBs (FOIL001446 at FOIL001458, 492, 494, 502–503).

2.2.4 Runoff

This section discusses the documented or potential PCB-containing discharges from the Site to Ley Creek or its tributaries via stormwater runoff.

- Aroclor 1260 was detected in soil adjacent to the drain outlet, discharging to the ground, for the transformer pad west of building 5A (FOIL001622 at FOIL001632). In addition, staining and sheening outside of transformer containment north of building 5 is visible in site photographs (FOIL000849 at FOIL000849–850).
- Based on ground elevations shown on cross-sections provided in the remedial investigation (RI) Report, PCBs on outdoor surfaces at the Site may have the potential to be entrained in site stormwater and discharged to Sanders Creek or South Branch Ley Creek via site runoff (FOIL001622 at FOIL001706, 713).

2.2.5 Groundwater

This section discusses the documented or potential PCB-containing discharges from the Site to Ley Creek or its tributaries via groundwater.

- Groundwater flow at the Site is northwest toward Sanders Creek and South Branch Ley Creek (FOIL001622 at FOIL001646).
- Groundwater historically infiltrated the site storm sewer discharging to Sanders Creek and South Branch Ley Creek through outfalls OF-01 and OF-02 (FOIL005567 at FOIL005569).

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- Lockheed reported that up to 370 ppb of Aroclor 1260 were detected in samples labeled “groundwater” during transformer removal in 1997 (FOIL000446 at FOIL000499). The primary report and additional information related to analysis of PCBs in groundwater was not identified in documents reviewed.

3. Data Gaps

TIG Environmental has identified the following data gaps that, if filled, would increase the understanding of how PCBs were used onsite and/or released from the GE Court Street Site.

- There is no record of sample analysis for PCBs adjacent to site outfalls. Onsite drainage sumps containing PCBs may have discharged via site outfalls.
 - Recommendation: Collect sediment samples adjacent to known and suspected outfalls.
- A letter from Lockheed to NYSDEC indicated the potential presence of PCBs in groundwater.
 - Recommendation: Collect groundwater samples to confirm previous detections of PCBs.
- There is limited information related to specific operations conducted in building 5A. Available documents indicate drainage sumps in this building contained PCBs. The assessment of the most likely uses of PCBs inside Site buildings and associated discharge pathways is limited by a lack of information about specific manufacturing operations and plumbing information.

4. Proposed Sampling to Assess Contributions to the Study Area

Because of the data gaps identified in Section 3, TIG Environmental proposes additional sampling at the Site, as described below. The sampling locations should be analyzed for PCB Aroclors (EPA Method 8082A), PCB congeners (EPA Method 1668C), total organic carbon (Lloyd Kahn method), grain size (ASTM D422), and total solids (ASTM D2216-98). In addition to those parameters, TIG Environmental may also propose sampling for particular contaminant classes (that is, metals, PAHs, VOCs, and semivolatile organic compounds [SVOCs]), depending on the nature of operations surrounding a particular sampling location.

4.1 Soil

Because of excavation activities that have been completed at the Site, soil sampling is not recommended at this time.

4.2 Sediment

Sediment sampling is recommended adjacent to known and suspected outfalls in Sanders Creek and South Branch Ley Creek. TIG proposes collecting sediment samples upstream, adjacent to, and immediately downstream of outfalls OF-01/1A and OF-02. In addition, TIG proposes collecting a sediment sample at the culvert exit upstream of outfall OF-01/1A to evaluate the potential for building discharges containing PCBs at this suspected outfall location. TIG proposes that sediment samples be analyzed for PCBs and PAHs.

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4.3 Other

Groundwater sampling is recommended at the collection sump on the north end of the Site to verify the presence of PCBs described in NYSDEC communications identified during document review.

5. References

This ESM was prepared using the evidentiary materials listed below and provided with this document.

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